Application No.: 10597998 Docket No.: 638001-07020

## AMENDMENTS TO THE CLAIMS

## 1-18. (canceled)

- 19. (currently amended) A transgenic cell comprising a polynucleotide molecule which hybridizes under stringent hybridization conditions with a nucleic acid molecule comprising a nucleotide sequence as represented in FIGS. 5a (SEQ ID NO:2), 5b (SEQ ID NO:3), 6a (SEQ ID NO:5), 6c (SEQ ID NO:20), 7a (SEQ ID NO:7), 8a (SEQ ID NO:9), 8b (SEQ ID NO:10), 9a (SEQ ID NO:12), 10a (SEQ ID NO:14), 11a (SEQ ID NO:15), 11b (SEQ ID NO:16), or 11d (SEQ ID NO:18), wherein said polynucleotide molecule encodes a polypeptide which has desaturase activity.
- (previously presented) The transgenic cell according to claim 19, wherein the cell
  comprises an expression vector which comprises the polynucleotide molecule and an expression
  regulatory element operably linked thereto.
- (previously presented) The transgenic cell according to claim 20, wherein the expression regulatory element is a promoter.
- 22. (currently amended) The cell according to claim 19, wherein the polynucleotide molecule comprises the nucleic acid sequence as represented in FIGS. 5a (SEQ ID NO:2), 5b (SEQ ID NO:3), 6a (SEQ ID NO:5), 6c (SEQ ID NO:20), 7a (SEQ ID NO:7), 8a (SEQ ID NO:9), 8b (SEQ ID NO:10), 9a (SEQ ID NO:12), 10a (SEQ ID NO:14), 11a (SEQ ID NO:15), 11b (SEQ ID NO:16), or 11d (SEQ ID NO:18).
- (previously presented) The cell according to any of claim 19, wherein the cell over-expresses the polypeptide which has desaturase activity.
- (currently amended) The cell according to claim 19, wherein the nucleotide sequence is as represented by FIG. 10a (SEQ ID NO:14), and wherein said polypeptide has DELTA.11-desaturase activity.

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 (currently amended) The cell according to claim 19, wherein the nucleotide sequence is as represented by FIG. 8a (SEQ ID NO:9), and wherein the polypeptide has DELTA.6-desaturase activity.

- (previously presented) The cell according to claim 19, wherein the transgenic cell is a eukarvotic cell.
- (previously presented) The cell according to claim 26, wherein the cell is a plant cell.
  - 28. (previously presented) A plant comprising a cell according to claim 27.
- (previously presented) The plant according to claim 28, wherein the plant is an oil seed plant.
  - 30. (previously presented) A seed comprising a cell according to claim 27.
- (previously presented) The seed according to claim 30, wherein the seed is an oil plant seed.
- (previously presented) The cell according to claim 19, wherein the cell is a prokaryotic cell.
- 33. (currently amended) A reaction vessel comprising at least one polypeptide encoded by a polynucleotide molecule which hybridizes under stringent hybridization conditions with a nucleic acid molecule comprising a nucleotide sequence as represented in FIGS. 5a (SEQ ID NO:2), 5b (SEQ ID NO:3), 6a (SEQ ID NO:5), 6c (SEQ ID NO:20), 7a (SEQ ID NO:7), 8a (SEQ ID NO:9), 8b (SEQ ID NO:10), 9a (SEQ ID NO:12), 10a (SEQ ID NO:14), 11a (SEQ ID NO:15), 11b (SEQ ID NO:16), or 11d (SEQ ID NO:18), wherein said polynucleotide molecule encodes a polypeptide which has desaturase activity, at least one fatty acid substrate, and suitable co-factors, wherein said vessel is adapted for desaturation of the at least one fatty acid substrate.

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34. (previously presented) The vessel according to claim 33 wherein the vessel comprises a transgenic cell comprising an expression vector which comprises the polynucleotide molecule.

- (previously presented) The vessel according to claim 34, wherein the cell is a veast cell.
- (previously presented) The vessel according to claim 34, wherein the cell is a prokaryotic cell.
- 37. (previously presented) A method to desaturate a fatty acid substrate comprising the steps of: i) providing a reaction vessel according to claim 33; and ii) culturing the cell contained in the reaction vessel under conditions which allow desaturation of at least one fatty acid substrate.
- 38. (currently amended) A transgenic cell according to claim 19, wherein the transgenic cell comprises a polynucleotide molecule which encodes a polypeptide molecule comprising an amino acid sequence as represented in FIGS. 1c (SEQ ID NO:1), 5c (SEQ ID NO:4), 6b (SEQ ID NO:6), 6d (SEQ ID NO:21), 7b (SEQ ID NO:8), 8c (SEQ ID NO:11), 9b (SEQ ID NO:3), 11c (SEQ ID NO:17) or 11e (SEQ ID NO:19).
- 39. (currently amended) A transgenic cell comprising a polynucleotide molecule which encodes a polypeptide molecule, wherein the polypeptide molecule comprises an amino acid sequence having at least 95% sequence identity to an amino acid sequence shown in FIG. 1c (SEQ ID NO:1), and wherein the polypeptide has desaturase activity.
- 40. (currently amended) The transgenic cell according to claim 39, wherein the polypeptide molecule comprises an amino acid sequence having at least 99% sequence identity to an amino acid sequence shown in FIG. 1c (SEQ ID NO:1).
- (currently amended) The transgenic cell according to claim 40, wherein the polypeptide molecule comprises an amino acid sequence shown in FIG. 1c (SEQ ID NO:1).

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